

Overview of VDOT's 2025 Highway Needs Assessment

2004 Transportation Conference

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October 18, 2004

This presentation . . .

- Purpose
- How the HNA fits in the planning process?
- Why develop a HNA?
- How the HNA was developed?
- What is SPS, and what does it do?
- What does the HNA does and does not do?
- Results of the HNA

2025 Highway Needs Assessment

Purpose:

Establishes a technical and objective method of identifying system wide highway solutions to highway performance deficiencies, without financial constraints, to assist policy and decision makers in determining future transportation funding needs.

Statewide Planning Process

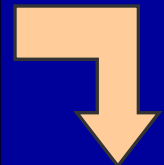
2025 Highway Needs Assessment

- Objective statewide analysis of highway deficiencies and their possible highway solutions, utilizing the Statewide Planning System (SPS)



2025 Statewide Highway Plan

- Using the Highway Needs Assessment as a tool for flagging problem areas, the Statewide Highway Plan takes into consideration local and regional transportation plans, as well as constructability and the possibility of solutions other than highways to identify viable highway system recommendations



Highway Prioritization

- Applies specific criteria to highway system recommendations in the Statewide Highway Plan to identify priorities

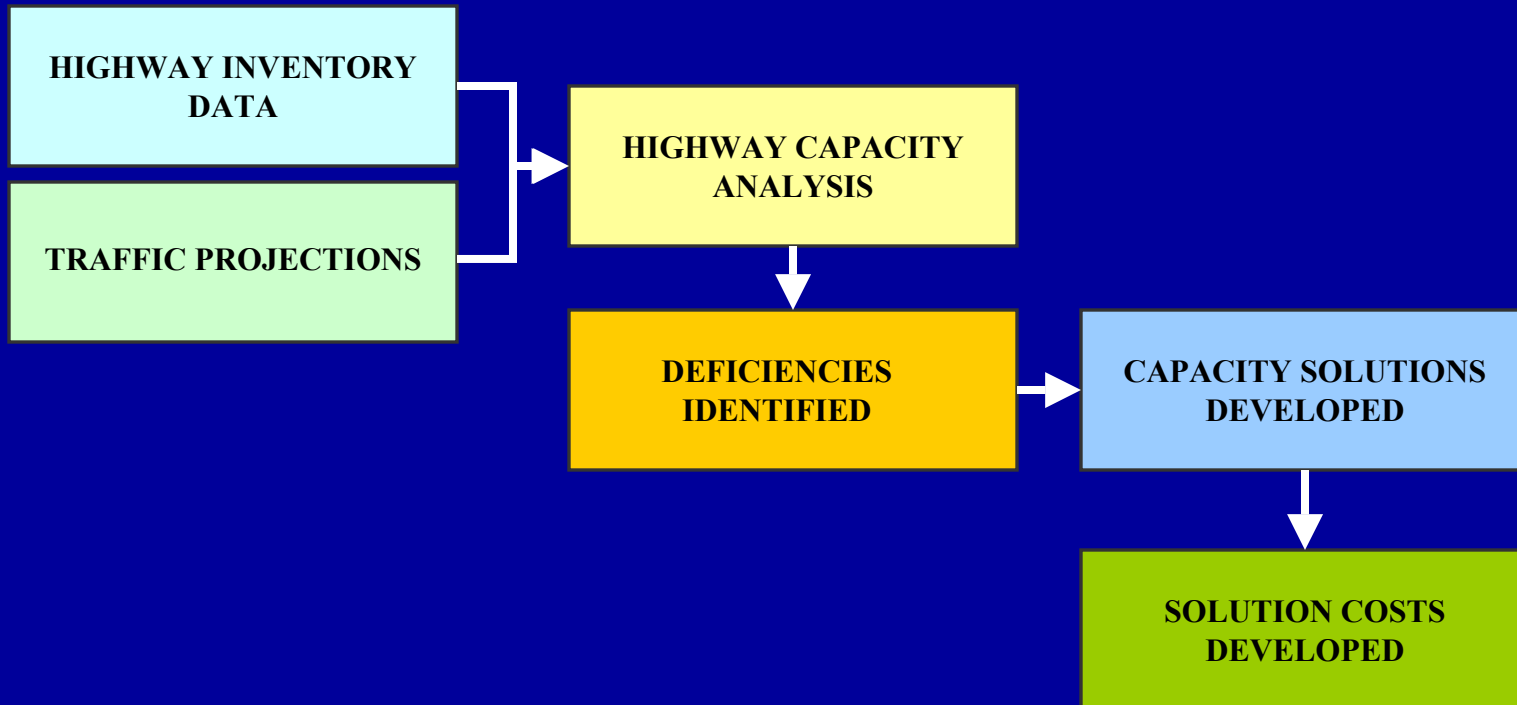
WHY develop a Highway Needs Assessment?

- Developed in accordance with Code of Virginia §33.1-23.03 (requirement for VTRANS2025, as well as identification of needs)
- JLARC and Auditor of Public Accounts recommended an objective Needs Assessment

HOW was the 2025 Highway Needs Assessment developed?

- Statewide Planning System (SPS)
 - Uses an Oracle-based PC application
 - Utilizes planning database
 - Evaluates over 19,000 highway system records
 - Identifies highway capacity deficiencies
 - Identifies highway solutions
 - Develops planning cost estimates

SPS Demonstration



WHAT does the Highway Needs Assessment do?

- Objective Planning Analysis:
 - System-generated solutions for all Federally funded roadways
 - Utilizes Transportation Research Board's Highway Capacity Methodology (2000) to identify capacity and geometric deficiencies

WHAT does the Highway Needs Assessment do? Continued...

- Performance measures based on Level of Service (LOS) criteria:
 - **Rural areas: LOS C**
 - LOS of D or below in rural areas represents a deficiency
 - **Urban and Urbanized areas: LOS D**
 - LOS of E or below in urban and urbanized areas represents a deficiency
- LOS is based on an analysis of the peak hour

Needs Assessment Methodology

- The Needs Assessment does:
 - Identify possible highway solutions on existing alignments
 - Analyze only roads Federally functionally classified minor collector and above
 - Develop cost estimates using system-wide average costs
 - Provide cost estimates in 2002 constant dollars, as well as 2025 inflated dollars (for VTRANS)

Needs Assessment Methodology

- The Needs Assessment **does not**:
 - Utilize recommendations from previous corridor studies and plans
 - Consider “constructability” of solutions
 - Include maintenance needs
 - Analyze local roads and streets
 - Include current Six Year Improvement Program Projects

Results Provided to VTRANS2025

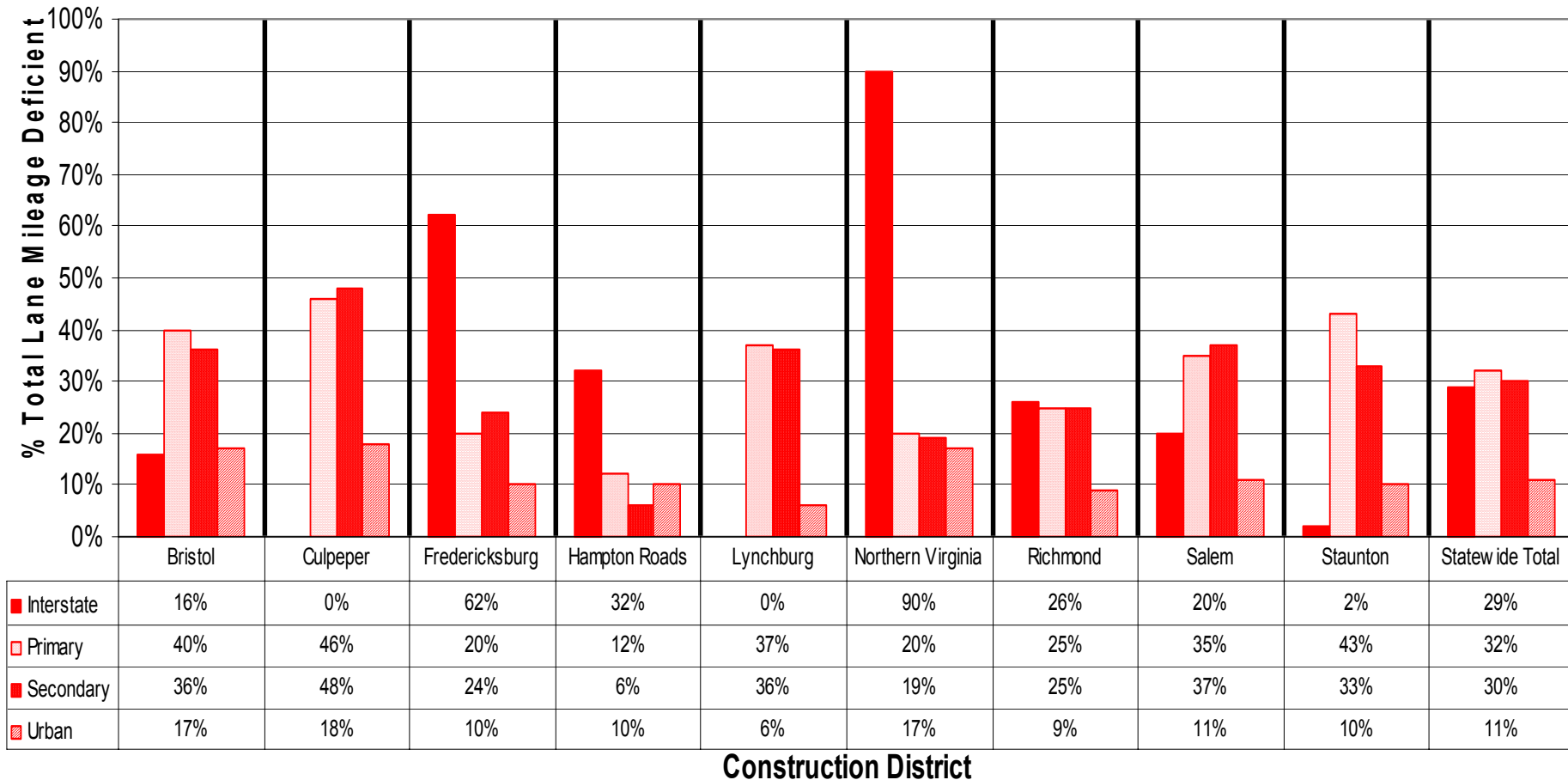
- Cost estimate for the Statewide Highway Needs Assessment were provided in “2025 inflated dollars”
- A 3% annual inflation rate was assumed
- The following graphs present the information in 2002 dollars

Lane Mileage by System (2002)

Note: Totals do not include local street mileage

DISTRICT	INTERSTATE	PRIMARY	SECONDARY	URBAN	DISTRICT TOTAL
<u>Bristol</u>	520	2898	2562	332	6312
<u>Salem</u>	490	2605	3100	795	6991
<u>Lynchburg</u>	4	2682	2983	658	6327
<u>Richmond</u>	1307	3247	3765	1050	9368
<u>Hampton Roads</u>	865	2050	1835	3510	8259
<u>Fredericksburg</u>	282	2155	2285	74	4797
<u>Culpeper</u>	275	1822	1818	196	4111
<u>Staunton</u>	941	2418	2554	594	6507
<u>Northern Virginia</u>	673	1507	2656	553	5390
STATE TOTAL	5356	21385	23558	7762	58061

Percentage of Total Lane Mileage by Construction District by Highway System Deficient* in 2004

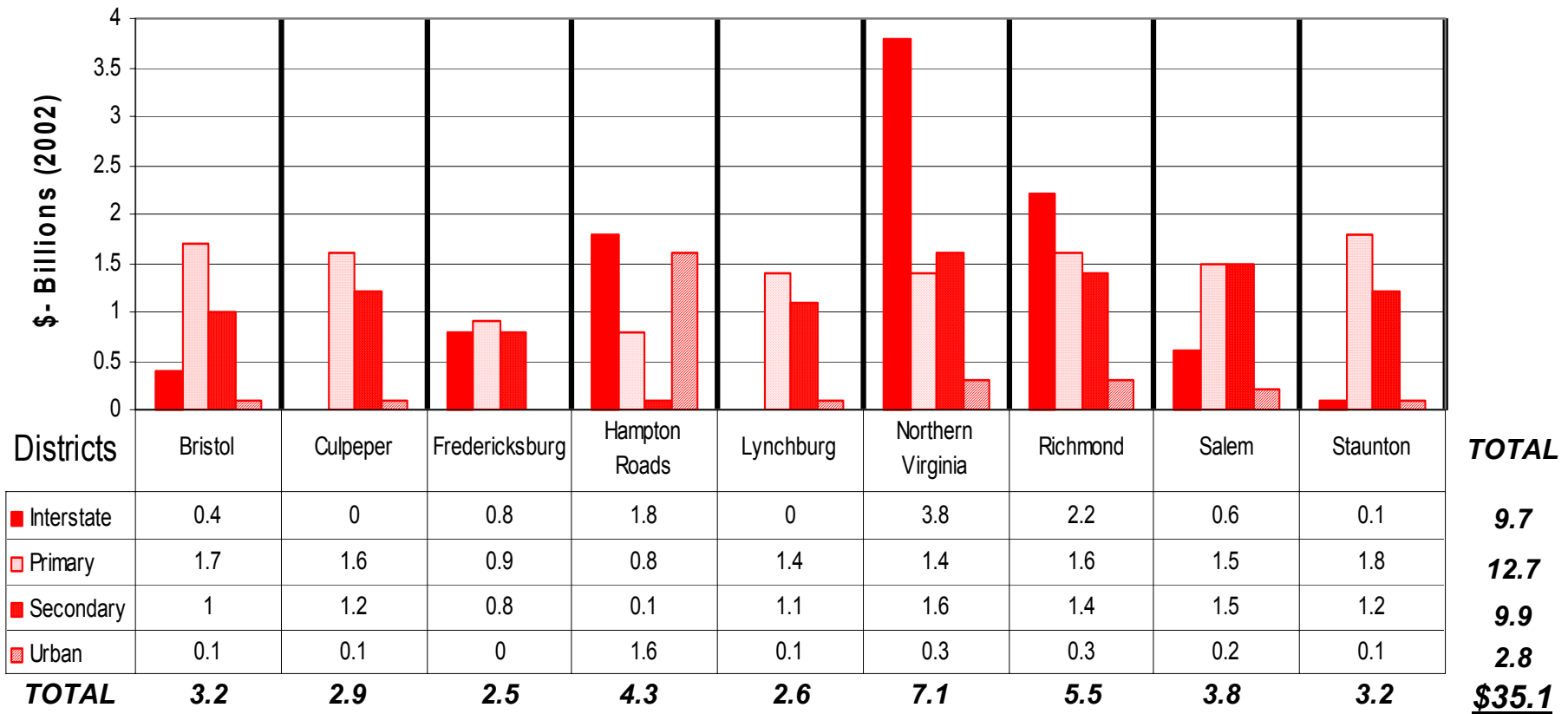


Construction District

*Deficiencies defined as facilities operating **below** LOS C in rural areas, LOS D in urban areas

Estimated Investment Needed on Highway Facilities by Construction District to Achieve Performance Levels* in 2004

STATEWIDE TOTAL: \$35 Billion



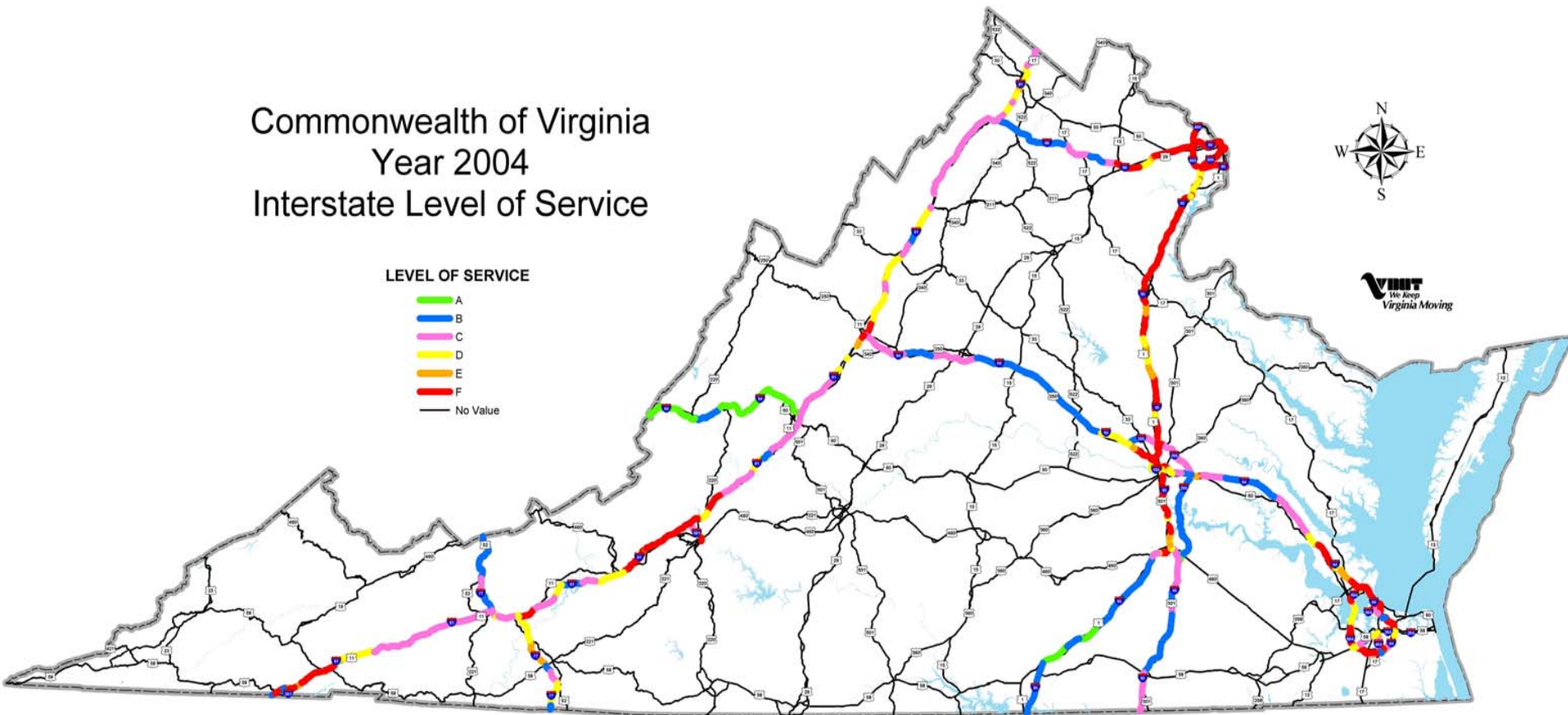
*Performance Levels defined as LOS C or better in rural areas, LOS D or better in urban areas

2004

Commonwealth of Virginia Year 2004 Interstate Level of Service

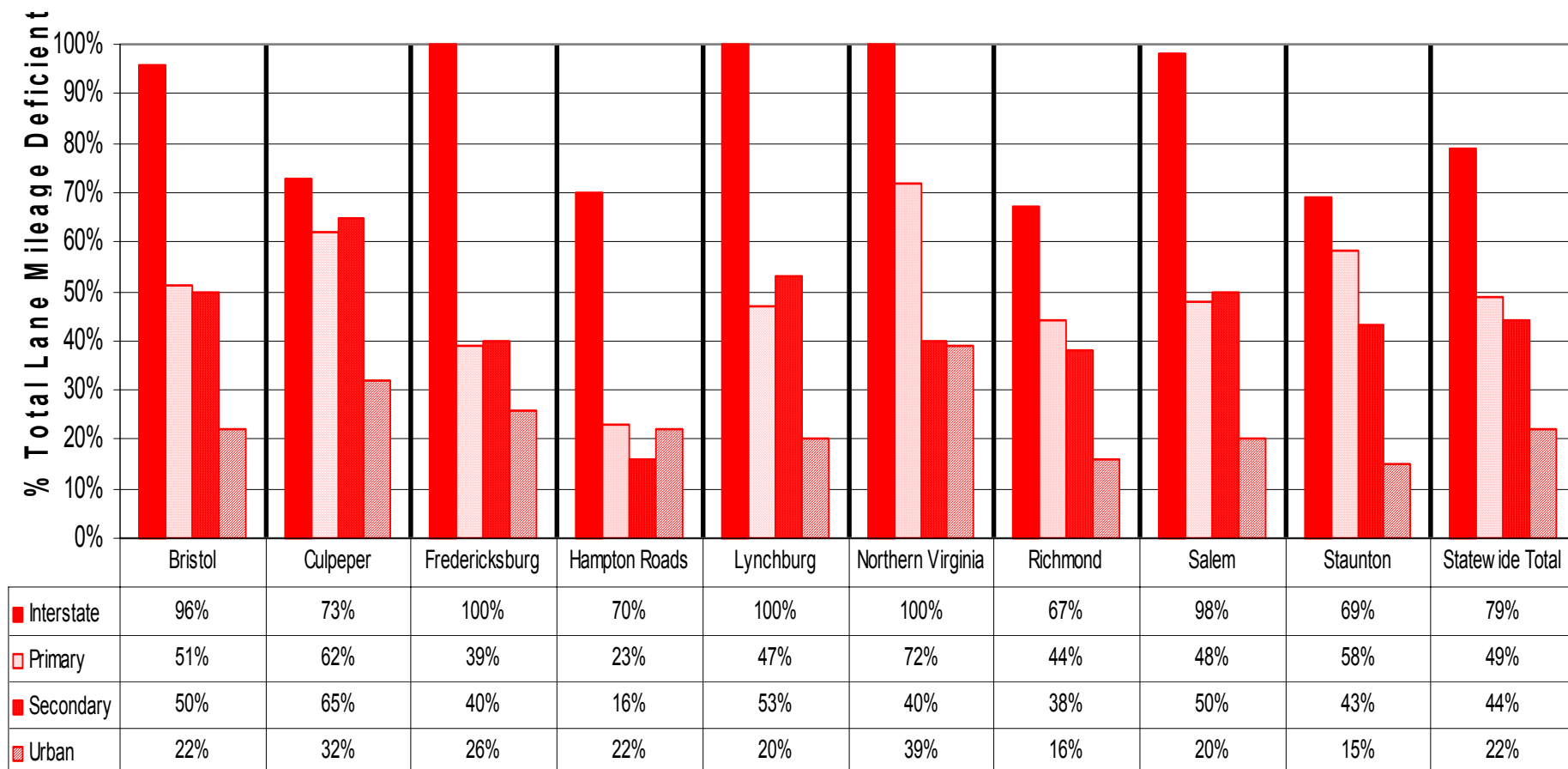
LEVEL OF SERVICE

- A
- B
- C
- D
- E
- F
- No Value



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Percentage of Total Lane Mileage by Construction District by Highway System Deficient* in 2025

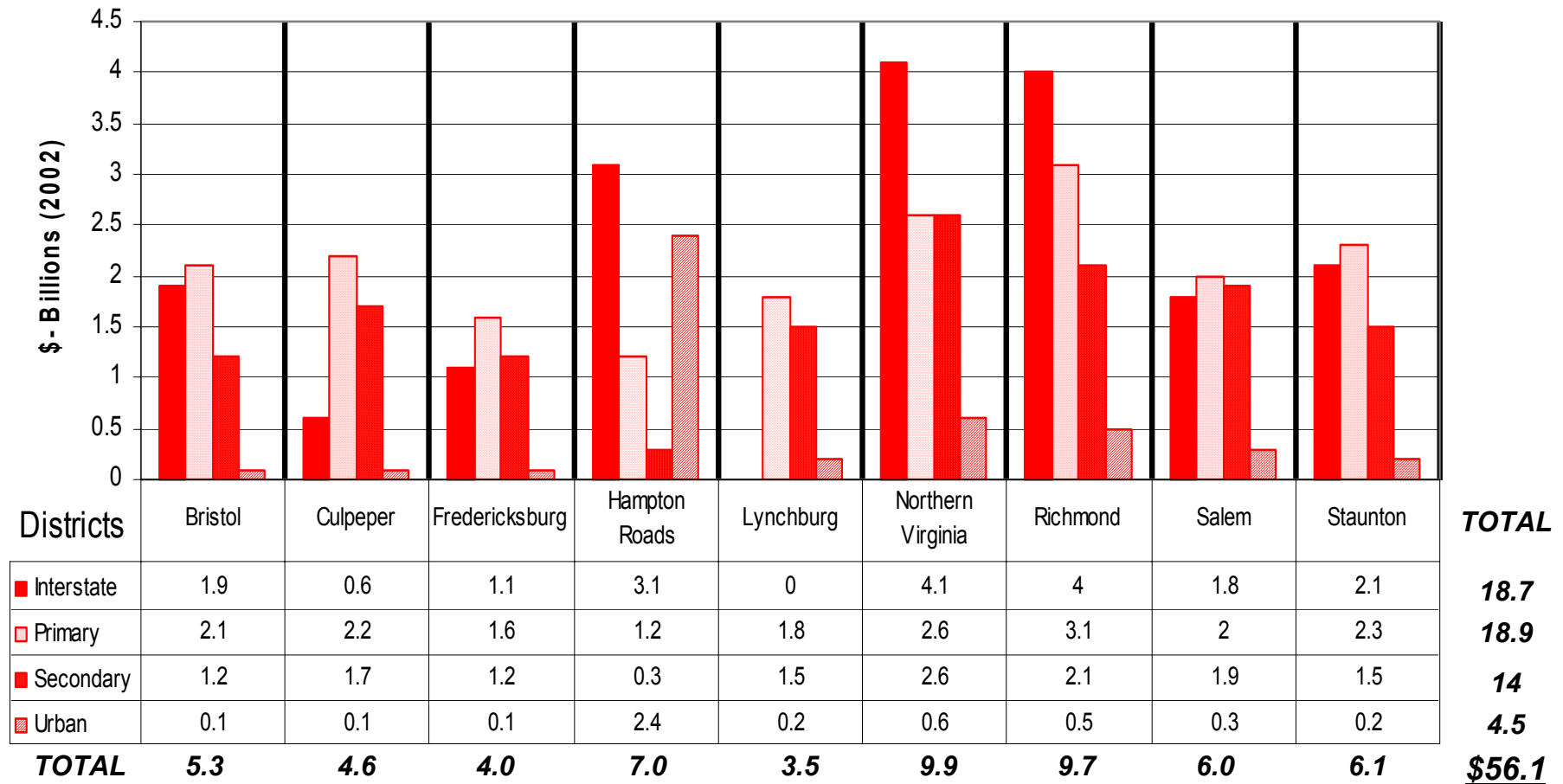


Construction District

*Deficiencies defined as facilities operating **below** LOS C in rural areas, LOS D in urban areas

Estimated Investment Needed on Highway Facilities by Construction District to Achieve Performance Levels* in 2025

STATEWIDE TOTAL: \$56 Billion (2002 dollars, shown below), \$111 Billion (2025 inflated dollars)



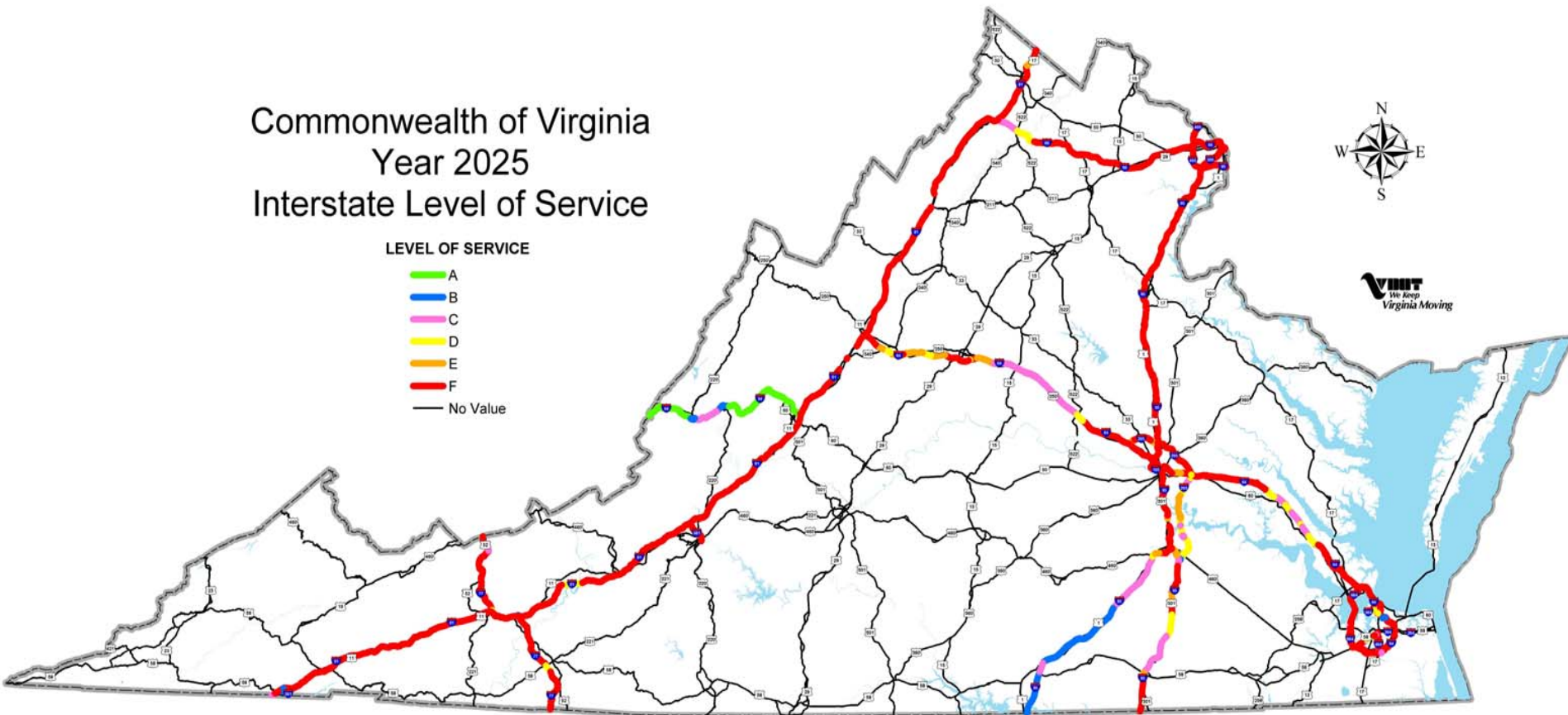
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2025

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